UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,219	07/14/2005	Kazuyoshi Saito	6268-005/NP	1745

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EXAMINER
KIM, WESLEY LEO

ART UNIT	PAPER NUMBER
2617	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/542,219	SAITO ET AL.
Office Action Summary	Examiner	Art Unit	
	WESLEY L. KIM	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>14 July 2005</u>.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-18</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-8,10-16 and 18</u> is/are rejected.
7) ☒ Claim(s) <u>9 and 17</u> is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on <u>7/14/05</u> is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☒ All b) ☐ Some * c) ☐ None of:
       1. ☒ Certified copies of the priority documents have been received.
       2. ☐ Certified copies of the priority documents have been received in Application No. _____.
       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
          application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date <u>7/14/05</u>.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Drawings

Figures 17-21 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

1. Claims 2, 7, 9, 11, 16, 18 and objected to because of the following informalities:
   These claims recite limitations such as "(NAV), (Nch), (Np), (Nch >= Np)" all within the parenthesis. The parenthesis makes it unclear as to whether or not the limitation is positively recited within the claims. The examiner suggests removing the parenthesis and putting commas before and after the above terms (e.g. , NAV,) to positively recite the terms within the claim. Appropriate correction is required.

2. Claims 1-2, 5-8, 10-11, 14-17 are objected to because of the following informalities:
   It is unclear what STA is. If STA is an Acronym or shorthand for another term, it should be spelled out at least once before being utilized throughout the claims for purposes of clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-2 and 10-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

    Regarding Claims 1-2 and 10-11, the preamble recites "STAs" and the body recites "each receiver terminal". To the examiner, it is unclear where the STAs is comprised of "each receiver terminal" or if they are just totally different entities.

    Regarding Claims 5-8 and 14-17, the limitations recite "an own station". The examiner is really confused as to what an own station is. Further, the examiner is unsure of whether or not the own station is a STA or not.

    The rejections made below have been given the broadest reasonable interpretation in view of the 35 U.S.C 112 second paragraph rejections.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

   Applicants Admitted Prior Art (10/542219).

      Regarding Claims 1 and 10, Applicants Admitted Prior Art (AAPA) teaches a

wireless packet communication method of transmitting data packets by use of radio

channels which are determined to be idle by carrier sense (Col.1:lines 12-15),

between more than 3 STAs in which a plurality of radio channels are available

(Page.1:lines 12-16, a plurality of radio channels are available but only one channel

can be used together at different times by a plurality of STAs, which can obviously

be more than 3 STAs), characterized by comprising: individually managing, for each

receiver terminal (Page.5:line 11, respective STAs), a plurality of types of available

transmission rates (Page.5:lines 11-13) to be used for transmission of said data

packets (Page.5:lines 11-18, the transmission rates of each receiver is managed

and appropriate packets are selected for transmission to the respective receiver

terminals); when there are a plurality of data packets to be transmitted onto a

transmission buffer (Page.5:lines 13-16, there are plurality of data packets since

plurality of packets are being waiting to be selected for transmission), referring to

packet sizes representative of data amounts of the respective data packets and to

transmission rates of the respective data packets associated with receiver terminals

(Page.5:lines 11-13, packet size and transmission rates), checking packet time

lengths of the respective data packets (Page.5:lines 11-13, packet time lengths), and

selecting said plurality of data packets whose packet time lengths are approximately

equal to each other regardless of their receiver terminals (Page.5:lines 13-16), the

packet times lengths being transmission times defined by the packet sizes and

transmission rates (Page.5:lines 11-13); and simultaneously commencing the

transmissions of said plurality of selected data packets by use of a plurality of radio

channels (Page.5:lines 13-16), however the Applicants Admitted Prior Art **does not**

expressly teach determining when it is possible to transmit said plurality of data

packets simultaneously by use of a plurality of radio channels.

AAPA does teach that it is well known in the art that one radio channel can be

determined to be idle prior to transmitting data packets (Page.1:lines 12-24) and the

AAPA teaches that it is known that data packets may be simultaneously transmitted

through different radio channels (Page.5:lines 22-25). By the combination of both

teachings it is obvious that a skilled artisan would envision determining when it is

possible to transmit a plurality of data packets simultaneously by use of a plurality of

radio channels (i.e. determining when the plurality of radio channels are idle) so that

the plurality of data may be transmitted to the destination without collisions.

To one of ordinary skill in the art, it would have been obvious to modify AAPA

such that a determination is made as to when it is possible to transmit a plurality of

data packets simultaneously by use of a plurality of radio channels, to provide a

method where the plurality of data may be successfully transmitted to the destination

without collisions with on-going transmissions on any of the plural radio channels.

2. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Applicants Admitted Prior Art (10/542219) in view of Odman (U.S. 2003/0210710

A1) and Brockmann et al (U.S. 2003/0133469 A1).

     Regarding Claims 2 and 11, Applicants Admitted Prior Art (AAPA) teaches a wireless packet communication method of transmitting data packets by use of radio channels which are determined to be idle by carrier sense (Col.1:lines 12-15), between more than 3 STAs in which a plurality of radio channels are available (Page.1:lines 12-16, a plurality of radio channels are available but only one channel can be used together at different times by a plurality of STAs, which can obviously be more than 3 STAs), characterized by comprising: individually managing, for each receiver terminal (Page.5:line 11, respective STAs), a plurality of types of available transmission rates (Page.5:lines 11-13) to be used for transmission of said data packets (Page.5:lines 11-18, the transmission rates of each receiver is managed and appropriate packets are selected for transmission to the respective receiver terminals); when there are a plurality of data packets to be transmitted onto a transmission buffer (Page.5:lines 13-16, there are plurality of data packets since plurality of packets are being waiting to be selected for transmission), referring to packet sizes representative of data amounts of the respective data packets and to transmission rates of the respective data packets associated with receiver terminals (Page.5:lines 11-13, packet size and transmission rates), checking packet time lengths of the respective data packets (Page.5:lines 11-13, packet time lengths), and selecting said plurality of data packets whose packet time lengths are approximately equal to each other regardless of their receiver terminals (Page.5:lines 13-16), the packet times lengths being transmission times defined by the packet sizes and transmission rates (Page.5:lines 11-13); and simultaneously commencing the

transmissions of said plurality of selected data packets by use of a plurality of radio channels (Page.5:lines 13-16), however the Applicants Admitted Prior Art **does not expressly teach** determining when it is possible to transmit said plurality of data packets simultaneously by use of a plurality of radio channels; determining, from the packet time lengths of said data packets and of acknowledgment packets to be calculated from the transmission rates of the data packets associated with destinations, time when the receiver terminals of the data packets transmit acknowledgment packets, and storing, in the respective data packets, information on acknowledgment packet transmission time and information on a transmission deferral duration (NAV) which is a period of time taken for completion of transmissions of acknowledgment packets to all of data packets simultaneously transmitted, the acknowledgment packet transmission time being time when the receiver terminals of the respective data packets are allowed to transmit acknowledgment packets;

AAPA does teach that it is well known in the art that one radio channel can be determined to be idle prior to transmitting data packets (Page.1:lines 12-24) and the AAPA teaches that it is known that data packets may be simultaneously transmitted through different radio channels (Page.5:lines 22-25). By the combination of both teachings it is obvious that a skilled artisan would envision determining when it is possible to transmit a plurality of data packets simultaneously by use of a plurality of radio channels (i.e. determining when the plurality of radio channels are idle) so that the plurality of data may be transmitted to the destination without collisions.

Odman teaches that determining, from the packet time lengths of said data packets and of acknowledgment packets to be calculated from the transmission rates of the data packets associated with destinations, time when the receiver terminals of the data packets transmit acknowledgment packets (Par.123, in order indicate when the ACK should be transmitted packet time lengths must be known), and storing, in the respective data packets (i.e. stored in burst), information on acknowledgment packet transmission time (Par.123, end of offset value is the acknowledgment transmission time), the acknowledgment packet transmission time being time when the receiver terminals of the respective data packets are allowed to transmit acknowledgment packets (Par.123); and Brockmann further teaches that it is well known in the art to store in the respective data packets, information on a transmission deferral duration (NAV) which is a period of time taken for completion of transmissions of acknowledgment packets to all of data packets simultaneously transmitted (Par.8, the ACK frame is NAV protected and received in the preceding data frame). It would have been obvious to modify AAPA with Odman and Brockmann since they are all well known concepts which are related to the successful transmission of ACK packets to the transmitter.

To one of ordinary skill in the art, it would have been obvious to modify AAPA with Odman and Brockmann, such that a determination is made as to when it is possible to transmit a plurality of data packets simultaneously by use of a plurality of radio channels; determining, from the packet time lengths of said data packets and of acknowledgment packets to be calculated from the transmission rates of the data

packets associated with destinations, time when the receiver terminals of the data

packets transmit acknowledgment packets, and storing, in the respective data

packets, information on acknowledgment packet transmission time and information

on a transmission deferral duration (NAV) which is a period of time taken for

completion of transmissions of acknowledgment packets to all of data packets

simultaneously transmitted, the acknowledgment packet transmission time being

time when the receiver terminals of the respective data packets are allowed to

transmit acknowledgment packets, to provide a method where the plurality of data

may be successfully transmitted to the destination and back to the transmitter

without collisions with on-going transmissions on any of the plural radio channels.

3. Claims 3-7, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Applicants Admitted Prior Art (10/542219) in view of Kazumasa et al (JP 2003-

110575).

   Regarding Claim 3, 5-7, and 14-16, AAPA teaches all the limitations as

recited in claim 1, however AAPA **does not disclose** switching over to lower

transmission rates when selected packet length times are associated with

transmission rates lower than a current transmission rate.

   Kazumasa teaches that it is well known in the art that switching over to lower

transmission rates when selected packet length times are associated with

transmission rates lower than a current transmission rate (Par.13 and Abstract). In

communications systems it is known that by communicating with a lower speed, the

receiving accuracy of a modem will improve and can improve the communication
efficiency by reducing transmission errors.

To one of ordinary skill in the art, it would have been obvious to modify AAPA
with Kazumasa such that, communications is switched over to lower transmission
rates when selected packet length times are associated with transmission rates
lower than a current transmission rate, to provide a method where by communicating
with a lower speed, the receiving accuracy of a modem will improve and can
improve the communication efficiency by reducing transmission errors.

Regarding Claim 4, AAPA teaches all the limitations as recited in claim 1
and AAPA further teaches a first mode can be selected where equal data packets
are generated by dividing the packets (Page.4:lines 10-12) and AAPA further
teaches that unnecessarily dividing packets is inefficient and it is obvious that if
possible, that sending entire packets would be the more efficient way to go.

The examiner takes Official Notice that it is well known in the art that data
packets may have dummy packets added to them so that they may be made into a
certain size for transmission in the network. Its already known that packets may be
divided and that the network wants to utilize the most efficient method of providing
data transmission so it is obvious that a comparison would be made as to which
mode to use so that a network user may experience the best possible service.

4. Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over
Applicants Admitted Prior Art (10/542219), Odman (U.S. 2003/0210710 A1), and

Brockmann et al (U.S. 2003/0133469 A1) in further view of Kazumasa et al (JP
2003-110575).

Regarding Claim 8 and 17, AAPA, Odman, and Brockmann teaches all the
limitations as recited in claim 1, however the combination **does not disclose**
switching over to lower transmission rates when selected packet length times are
associated with transmission rates lower than a current transmission rate.

Kazumasa teaches that it is well known in the art that switching over to lower
transmission rates when selected packet length times are associated with
transmission rates lower than a current transmission rate (Par.13 and Abstract). In
communications systems it is known that by communicating with a lower speed, the
receiving accuracy of a modem will improve and can improve the communication
efficiency by reducing transmission errors.

To one of ordinary skill in the art, it would have been obvious to modify AAPA
with Kazumasa such that, communications is switched over to lower transmission
rates when selected packet length times are associated with transmission rates
lower than a current transmission rate, to provide a method where by communicating
with a lower speed, the receiving accuracy of a modem will improve and can
improve the communication efficiency by reducing transmission errors.

Allowable Subject Matter

Claims 9 and 18 are objected to as being dependent upon a rejected base claim,
but would be allowable if rewritten in independent form including all of the limitations of
the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WESLEY L. KIM whose telephone number is (571)272-7867. The examiner can normally be reached on Monday-Friday 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/
Supervisory Patent Examiner, Art Unit 2617

/Wesley L Kim/
Examiner, Art Unit 2617